



# AU Data Intensive Investments

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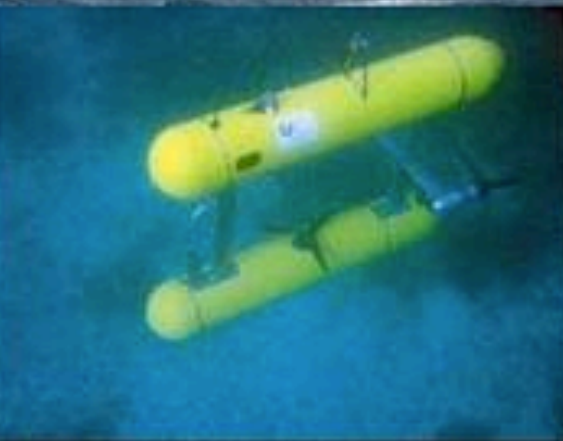
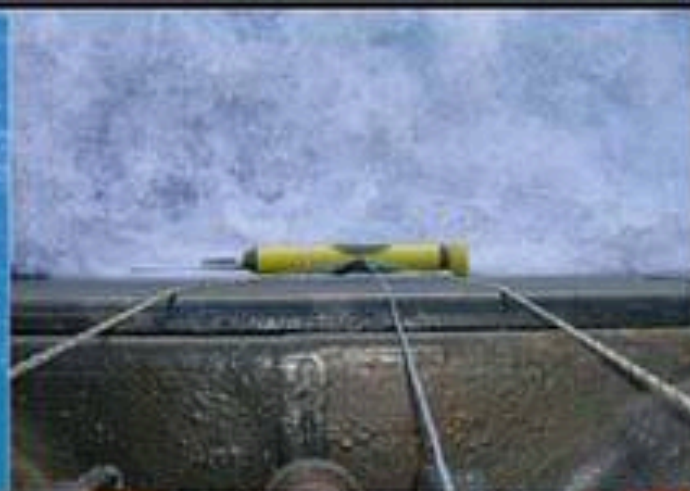
# National Research Data Infrastructure Investments

- Discipline (sample)
  - IMOS – Integrated Marine Observing System
  - TERN - Terrestrial Ecosystems Research Network
  - ALA – Atlas of Living Australia
- Infrastructure
  - RDSI – Research Data Storage Infrastructure
  - ANDS – Australian National Data Service
- All driven by need to create an innovative data infrastructure
- Do not include a national preservation service but are preservation aware

# IMOS: Observing Ocean Data











Layers Search Links

## Layer Selector

Base Layer World Bathymetry

- ☒ Argo Floats
- ☒ ANMN National Reference Station - Delayed



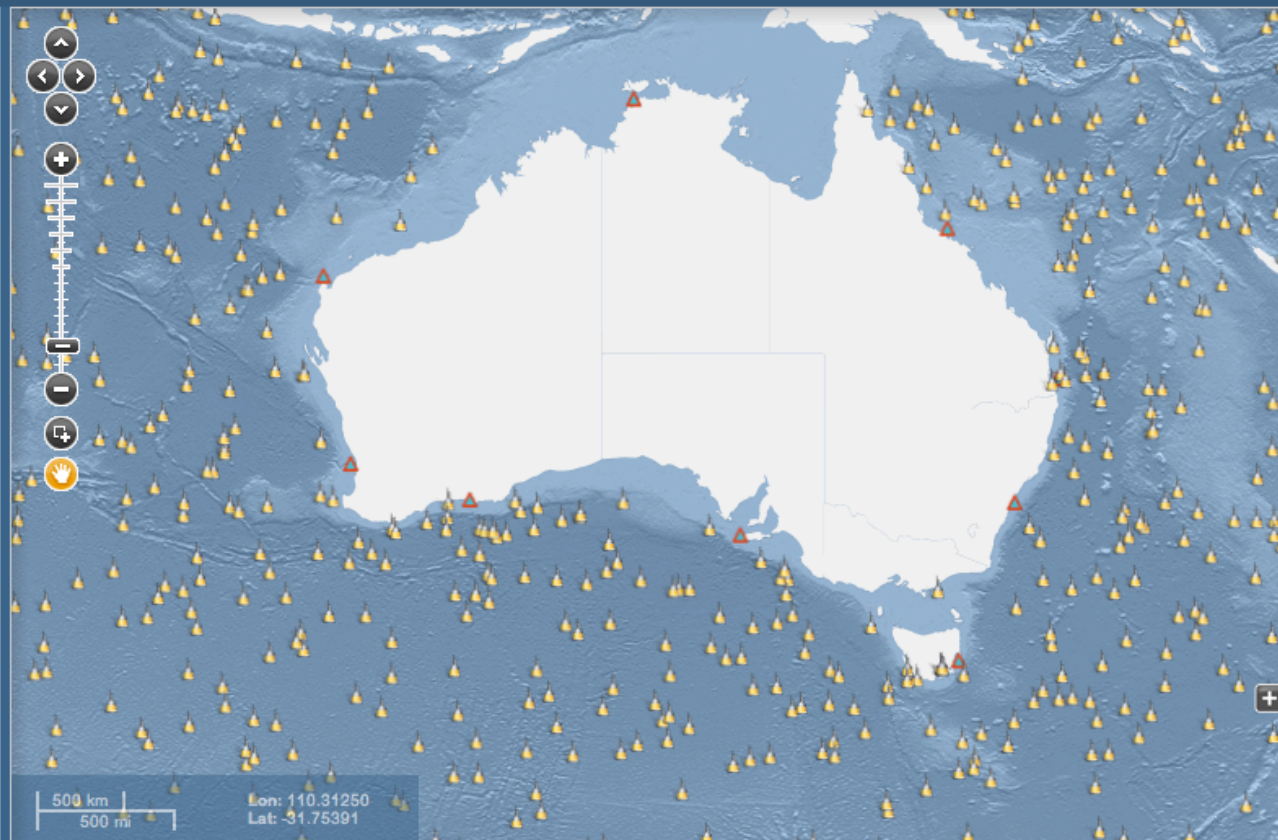
Login to save this map!

Clear Layers

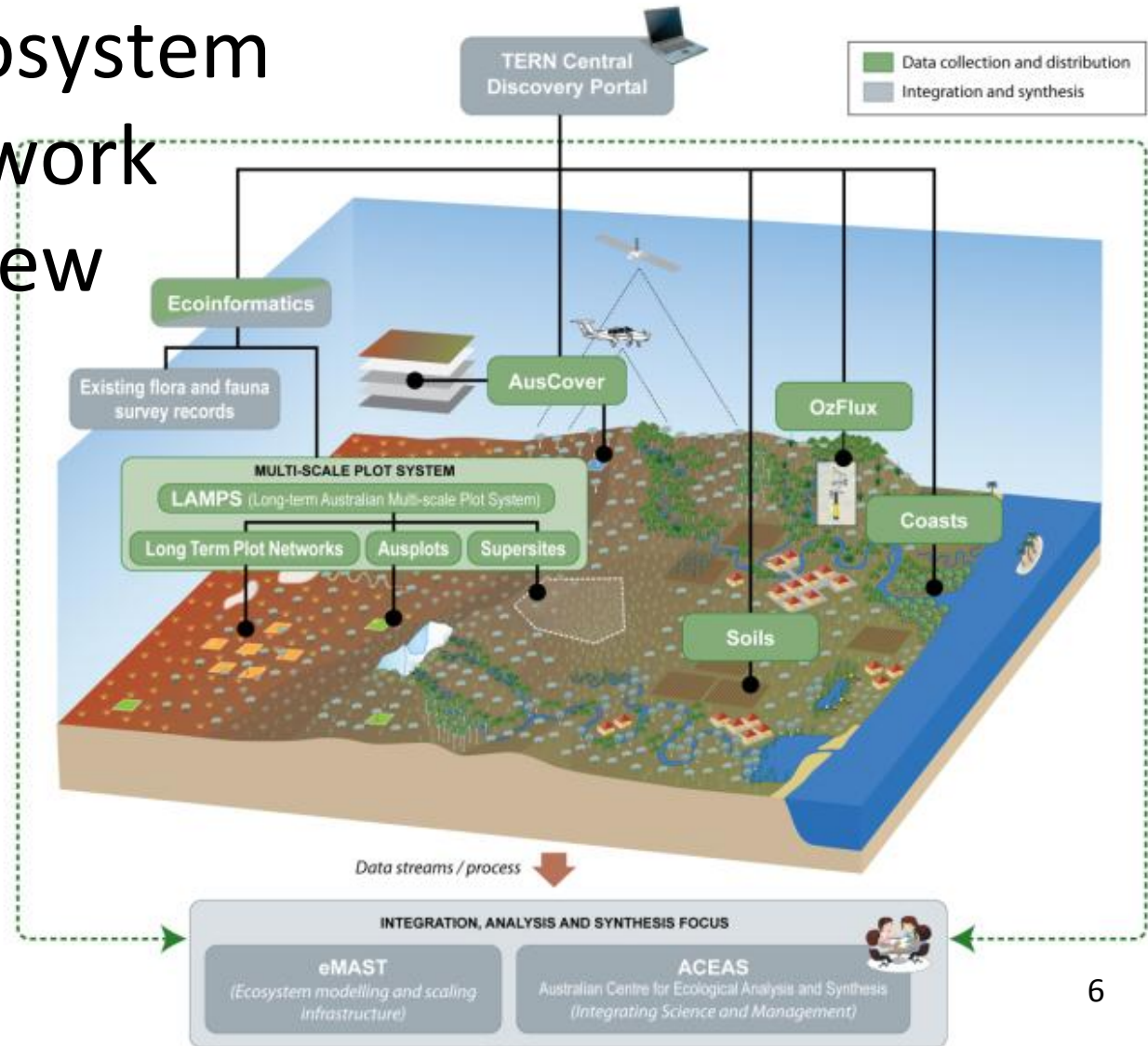
Reset Map

Facilities Locations Realtime User Defined

- ☒ Argo Floats
  - Argo Floats
  - Argo Oxygen Floats
- ☐ Ships of Opportunity (SOOP)
- ☐ Deep Water Moorings (ABOS)
- ☐ Ocean Gliders (ANFOG)
- ☐ Autonomous Underwater Vehicle (AUV)
- ☐ National Moorings Network (ANMN)
- ☐ Ocean Radar (ACORN)
- ☐ Animal Tagging and Monitoring (AATAMS)
- ☐ Wireless Sensor Networks (FAIMMS)
- ☐ Satellite Remote Sensing (SRS)
- ☐ Marine Information (eMII)



# Terrestrial Ecosystem Research Network (TERN) Overview



# TERN characteristics

- Primary objective is to provide network and resources to enable sustained, long-term collection, storage and sharing of ecosystem data to meet terrestrial ecosystem science and management needs in Australia
- Broad, problem based investment – will use national data services
- Can be seen as a very large “collecting activity”
- Multiple delivery platforms

# Atlas of Living Australia

- Developing an authoritative, freely accessible, distributed and federated biodiversity data management system
- Collect and organise biodiversity data, then deliver
- Participants:



Australian Government  
Department of the Environment,  
Water, Heritage and the Arts



Australian Government  
Department of Agriculture,  
Fisheries and Forestry



The Council of Heads of Australian  
Faunal Collections (CHAFC)  
The Council of Heads of Australian  
Entomological Collections (CHAECE)



The Council of Heads of Australasian  
Collections of Microorganisms (CHACM)  
The Council of Australasian Museum  
Directors (CAMD)

An Australian Government Initiative  
National Collaborative Research  
Infrastructure Strategy



## Explore Your Area

### Enter your location or address

E.g. a street address, place name, postcode or GPS coordinates (as lat, long)

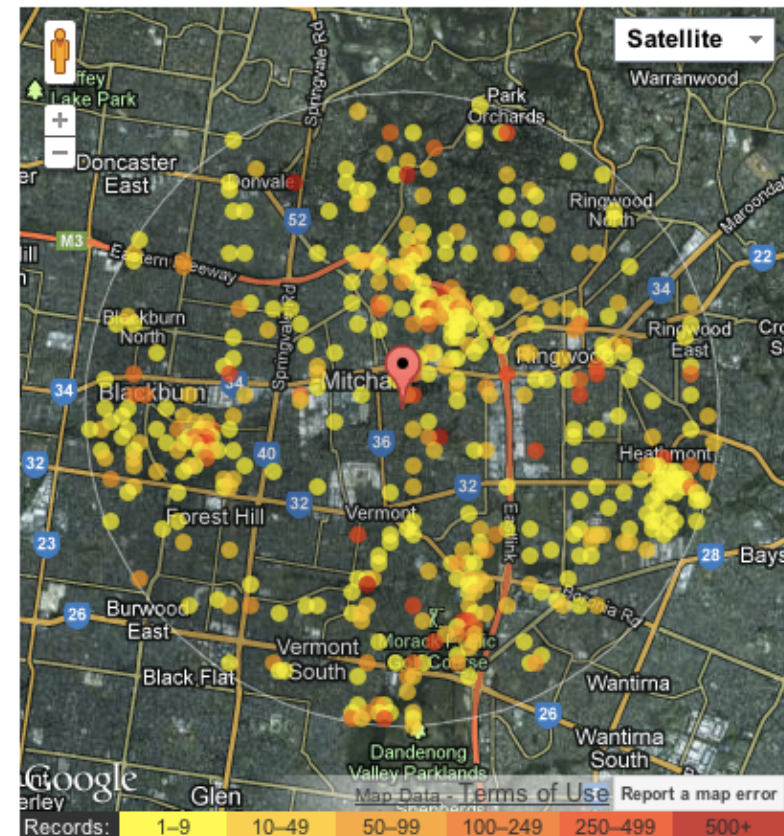


Showing records for: **3 Garden Ave, Mitcham VIC 3132, Australia** ?

Display records in a  km radius

[View all occurrence records](#)

Group	Species	Species : Common Name	Records
<b>All Species</b>	<b>1577</b>		
Animals	841	1. <i>Acacia acinacea</i> : Gold-dust Acacia	2
Mammals	13	2. <i>Acacia aculeatissima</i> : Snake Wattle	16
Birds	260	3. <i>Acacia baileyana</i> : Cootamundra Wattle	2
Reptiles	10	4. <i>Acacia boormanii</i> : Snowy River Wattle	1
Amphibians	8	5. <i>Acacia brownii</i> : Heath Wattle	4
Fish	2	6. <i>Acacia cognata</i> : Bower Wattle	1
Molluscs	4	7. <i>Acacia cultriformis</i> : Dog-tooth Wattle	1
Arthropods	544	8. <i>Acacia dealbata subsp. dealbata</i> : Mimosa	6
Crustaceans	1	9. <i>Acacia dealbata</i> : Silver Wattle	4
Insects	518	10. <i>Acacia decurrens</i> : Black Wattle	1
Plants	622	11. <i>Acacia elata</i> : Cedar Wattle	1
Bryophytes	29	12. <i>Acacia fimbriata</i> : Brisbane Golden Wattle	1
Gymnosperms	0	13. <i>Acacia genistifolia</i> : Early Wattle	2
FernsAndAllies	22	14. <i>Acacia howittii</i> : Howitt's Wattle	2
Angiosperms	549	15. <i>Acacia iteaphylla</i> : Flinders Range Wattle	1
Monocots	223	16. <i>Acacia lineata</i> : Narrow Lined-leaved Acacia	1
Dicots	326	17. <i>Acacia longifolia subsp. longifolia</i> : Sydney Golden Wattle	3
Fungi	70	18. <i>Acacia longifolia subsp. sophorae</i> : Coast Wattle	1
Chromista	0	19. <i>Acacia mearmsii</i> : Black Wattle	4
Protozoa	0	20. <i>Acacia melanoxylon</i> : Black Wattle	7
Bacteria	0	21. <i>Acacia mucronata subsp. longifolia</i>	1



**Tip:** you can fine-tune the location of the area by dragging the red marker icon

# *Tachyglossus aculeatus* (Shaw, 1792)

## Short-beaked Echidna

Record a sighting

Alerts 

Overview

Gallery


Names

Classification

Records

Literature

### Name source

[Australian Faunal Directory](#) 

### Rank

Species

### Data links

LSID

JSON / WMS/ RDF

### Species presence



Recorded In Australia



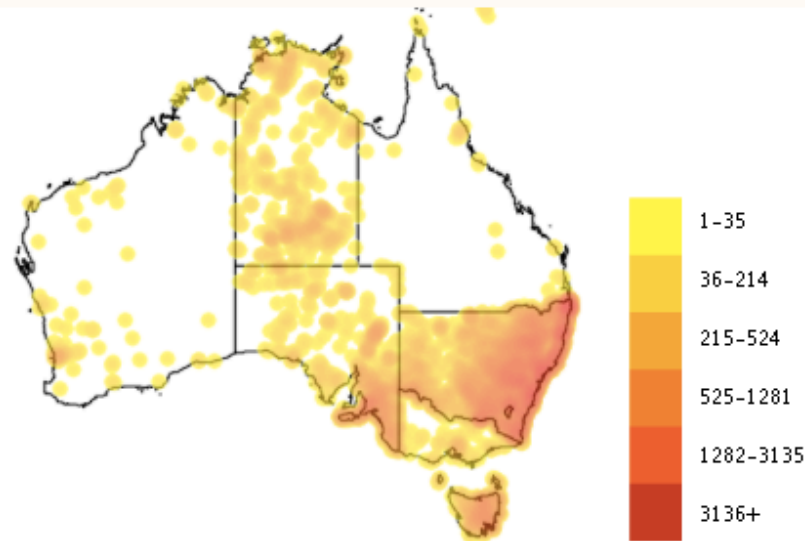
Terrestrial Habitats

### Conservation status



[Least Concern](#)

## Mapped occurrence records



[View records list](#)


[Map & analyse records](#)



Source: Flickr EOL

Image by: Leo

## Description

The Short-beaked Echidna has a long sticky tongue for catching ants and other insects. It is a monotreme - that means it lays eggs. The prickly coat gives it protection - much like a hedgehog or porcupine. Has strong claws for digging and tearing termite mounds apart. Males have spur on ankle These are not venomous (unlike the Platypus spurs which are venomous).... source: [OZ Animals](#) 

## Online resources

# Research Data Storage Infrastructure:

- Multiple petabyte stores around the country
- Each a partnership with local institutions
- Co-located with HPC
- Sometimes discipline-focused, and sometimes general
- Still determining service models as well as software stack

## Data is more valuable if it can be:

- used later
- used by more researchers
- used to answer new questions
- integrated to explore new data spaces

To do so, it must be managed, connected, discovered, and then re-used – it has to move out of the lab







# ANDS - A National Role





- ANDS was created by Australian government to
- enable more researchers to re-use research data more often
- enable a coherent institutional approach
- provide a forum for discussing research data
- improve the value of research data
- through creating a populated data commons - the ARDC, with tools and processes to enable its effective use

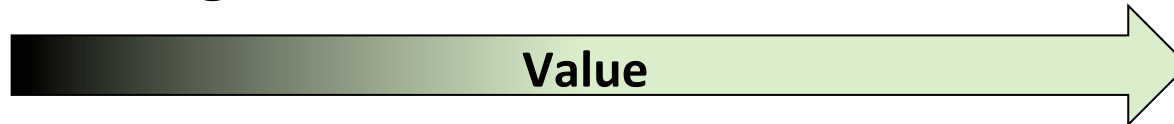
## ANDS enables transformation of:

Data that are:

-  Unmanaged
-  Disconnected
-  Invisible
-  Single use

To Structured Collections that are:

-  Managed
-  Connected
-  Findable
-  Reusable



so that Australian researchers can easily publish, discover, access and use research data.

# What is the ARDC?

A meeting place for researchers and data:

- The set of data collections that are shareable
- The descriptions of the collections
- The relationships between the data, the researchers, the problems, the instruments and the institutions
- The infrastructure that enables populating and exploiting the commons





RESEARCH DATA  
AUSTRALIA

SEARCH

[Advanced Search](#)**Research Data Australia is a discovery service for Australian research data.****What's in Research Data Australia****COLLECTIONS**

Research datasets or collections of research materials.

[Browse All Collections \(41,427\)](#)

**PARTIES**

Researchers or research organisations that create or maintain research datasets or collections.

[Browse All Parties \(5,952\)](#)

**SERVICES**

Services that support the creation or use of research datasets or collections.

[Browse All Services \(123\)](#)

**ACTIVITIES**

Projects or programs that create research datasets or collections.

[Browse All Activities \(27,484\)](#)

**Spotlight on research domains**

More information on research data infrastructure for specific domains:

**AuScope**

Australian Plant F

**AuScope**

AuScope is a world-class research infrastructure as a framework for understanding the structure, evolution and dynamic processes of the Australian continent in space and time.

<http://www.auscope.org.au/>

## ANDS Enablers:

- Research institutions central to success
  - few discipline data centres
- Shared desire across sector for change
- Professional services – research data analysts, research data carers, professional developers
- Changed status of research data

*That status is driving the value of preserving research data*

# A data sharing success story at CSIRO

- Pulsar data was being collected at Australian Telescope National Facility for local experiments
- ANDS funded software to collect rich metadata and make collections available
- This led to collaboration between Australian and Chinese pulsar researchers and joint papers
- School project run using same data



# Links

- [ands.org.au](http://ands.org.au)
- [researchdata.ands.org.au](http://researchdata.ands.org.au)
- [ross.wilkinson@ands.org.au](mailto:ross.wilkinson@ands.org.au)
- [andrew.treloar@ands.org.au](mailto:andrew.treloar@ands.org.au)